

## Remarks

### **Claim Amendments**

Claims 1-19 and 21-25 are in the case. Applicant has cancelled claim 20 and has added new claims 23-26.

### **Claim Rejections – 35 USC § 112**

The Examiner has rejected claim 7 under 35 U.S.C. 112 first paragraph as allegedly failing to comply with the enablement requirement. Claim 7 has been amended. Support for the amended language can be found in the specification in the last paragraph on page 11, paragraph [0057] in the published application. Claim 7 is believed to comply with the enablement requirement. Withdrawal of the examiner's rejection under section 112 is believed warranted and is respectfully requested.

### **Claim Rejections – 35 USC § 103**

The Examiner has rejected claims 1-5, 8-12, 15, 16, and 22 as being unpatentable over Jicha U.S. Patent No. 2,862,579 in view of Peterson U.S. Patent No. 3,357,639. Applicant respectfully traverses.

It is well settled that in order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103, three basic criteria must be met. See MPEP 2142 and 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Second, there must be a reasonable expectation of success. And third, the prior art reference or references must teach or suggest all the claim limitations. Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Here, neither reference teaches or suggests what application has achieved. Rather, both Jicha and Peterson teach away from configuring a device as application has, and has claimed. Further, neither reference provides any motivation or suggestion to even try to arrive at applicant's device. In fact combining the teachings of the

reference, as the examiner suggests would not yield a device that works as applicant's device does, therefore, even if motivated to combine there would be no expectation of success. Finally, all the limitation required by the claims are not met by the references, alone or in combination.

Jicha et al. teach a wheel block with a removable toothed foot having "a plurality of depending calks or teeth which readily grip a road surface and the like", (col. 1 lines 31-32). Once contact between the wheel and the wheel block is made "continued movement of the wheel ... causes [the block] to ... pivot or rotate ... to drive the foot portion and particularly the ground engaging calks thereon securely into the bed of the roadway... to increase their gripping action on the roadway." Column 2 lines 49-57. The teaching of Jicha et al. is entirely directed to providing a device intended not to move when in use. There is no suggestion to provide a device intended for allowing lateral movement of a suspended wheel as claimed by applicant. Again, Jicha clearly teaches away from allowing any movement of the wheel block when in use.

Peterson does not remedy the shortcomings of Jicha. Peterson does not teach or even remotely suggest allowing movement of a suspended wheel. FIG. 1 and FIG. 2 of Peterson illustrates a wheel chock having what are generally known as a Grip Struts surface facing downwardly to prevent any movement along a surface, and a Grip Struts surface facing upwardly to prevent any movement along a tire tread. Clearly there is no suggestion to allow lateral movement of a suspended wheel. Like Jicha, Peterson also teaches away from allowing any lateral movement of a tire. Column 2 lines 64-72 state "Many other positions will occur to a user and since both faces of both elements have non-slip characteristics...the fact that a non-slip contact will always be maintained with both the tire and the roadway."

Further, even if motivated (and there is no motivation to be found in either reference) to add the "Grip Strut" surface of Peterson to the uppermost edges of Jicha et al.'s wheel block, as suggested by the examiner, one skilled in the art would not achieve applicant's invention, as such a combination, as suggested by the examiner, would not allow lateral movement of a suspended tire. There can be no expectation of success to combine if such a combination will not succeed.

The examiner states "Jicha discloses all the limitations of the claim except for the sawteeth on the uppermost edges of the margins. Peterson teaches sawteeth (teeth on edges of plate 17)." Peterson discloses a traction mat and wheel chock for automotive vehicles. Beginning in column 1, line 64, Peterson describes a traction mat and wheel chock using elongated structural elements commercially known as "Grip Struts" made from stamped metal plates. They are not saw tooth shaped, the edges of the gripping surface are coplanar and define diamond shaped holes. The surfaces are intended to prevent slippage in all directions. Further the Grip Struts do not have an apex, as set forth, by applicant in claim 1, but instead have a perimeter ridge around each diamond shaped hole. Therefore, all the limitations of claim 1 have not been met.

The Examiner has rejected claim 19 under 35 USC 103(a) as being unpatentable over Jicha et al., in view of Peterson, and further in view of Freeman, U.S. Patent No. 6,260,666. As described above the Jicha et al. reference and the Peterson reference do not render applicants invention obvious. Claim 19 also includes recitation similar to claim 1 including "allowing lateral movement of a suspended vehicle wheel" and "a plurality of saw teeth". The Freeman reference does not overcome any of the shortcomings of the Jicha et al. reference, or the Peterson reference. Further if taken alone or in combination, the three references do not render claim 19 obvious. Claim 19 is therefore considered by applicant to be allowable. Such allowance is respectfully requested.

Reconsideration of the examiner's rejections, and allowance of claim 1, and all the claims which depend therefrom, i.e. claims 2-5, 8-12, 15, 16 and 22, is believed warranted and is respectfully requested.

Newly presented claims 23-26 are in condition for allowance at least for the all or some of the reasons, or similar reasons, discussed above. These claims do not specify a saw tooth pattern, but rather refers to a tire engaging interface adapted to prevent rotation of a suspended tire. Such a surface can be any suitable surface, including, but not limited to, saw tooth, grip struts, raised perforations, and any one of a number of friction enhancing materials. Allowance is therefore respectfully requested.

### **Objective Evidence of Nonobviousness**

While it is clear that the invention claimed in the present application is not obvious in light of the prior art, Applicant is enclosing herewith a recent article from Motor Magazine naming the "Torque Buddy", which is the commercial name of a commercial embodiment of the claimed invention, as one of 2005's Top 20 "most innovative new products." As set forth in the article, the award is for "tools that are truly new and innovative" and that possess "knockout originality." This industry recognition and accolade is a solid affirmation of, and objective evidence of, nonobviousness of the invention set forth in the claims. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

### **Election/Restrictions**

As claim 1 is generic to all of the embodiments disclosed in the application all the claims which the examiner has considered withdrawn from further consideration, specifically claims 6,13,14,17,18, and 21, should be considered on their merits and found allowable. Such allowance is respectfully requested.

### **Conclusion**

Applicant submits all the claims in the present application, specifically claims 1-19 and 21-26 are in the case and, are in condition for allowance. A Notice of Allowance is respectfully requested.

If the Examiner has any questions, he is invited to contact the undersigned at (503) 796-2496. Also, the Commissioner is hereby authorized to charge shortages or credit overpayments to Deposit Account No. 500393.

Respectfully submitted,  
SCHWABE, WILLIAMSON & WYATT, P.C.

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**September 2005. It's a bird! It's a plane! It's...the winners of Motor's  
Top 20 Tools Awards--this year's most innovative new products!**

Each year the call goes out to the world's automotive tool designers, manufacturers and suppliers. The message is simple: Send us your latest "super tools"—tools that are truly new and innovative. Show us something that makes us say: "Wow! We've never seen anything like this before." Besides knockout originality, there's only one other criterion that must be met for consideration: The product must have been introduced between July 1, 2004 and June 30, 2005.

Motor's annual Top 20 Tools competition is now in its 14th year. As in years past, we were impressed by the quality and ingenuity of the entries we received. We offer our sincere thanks to all companies that submitted candidates for consideration, and a special congratulations to each of this year's winners. Now, without further ado and in random order, we proudly present the best of the best for 2005.

### **EIgnition by Automotive Test Solutions**

The EIgnition analyzer can be hooked up quickly and easily to all current ignition systems. Unlike most secondary ignition analyzers, the EIgnition utilizes a parallel rather than an inductive pickup. This allows the user to collect precise cylinder ignition patterns and perform engine kill functions on DIS and COP ignition systems. The unit will display three styles of waveforms via its PC-based interface—primary, capacitive secondary or direct secondary. The EIgnition's direct secondary waveform sampling method generates extremely accurate voltage readings. Ignition analyzers traditionally incorporate 8-bit processors, so their degree of resolution is limited to the voltage range divided by 256. The EIgnition analyzer is read by a 12-bit processor, so the degree of resolution is equal to the voltage range divided by 4096. Another advantage of the direct sampling method is that a noisy system or an open ignition will not reset the scope. The analyzer trigger is based on actual coil discharge, so system noise will not cause a triggering problem. All scope traces and cylinder connections are color-coded, making it very easy to identify exactly which cylinder has a fault. All eight cylinders are independently and continuously monitored, which enables the technician to see any type of timing or crossfire problem. Most ignition analyzers use two channels—one to synchronize the signal and the other to display the ignition signals. Timing errors or crossfire may be impossible to detect. The EIgnition can continuously graph all eight channels simultaneously. No trigger is needed and no data is missed. With direct monitoring, the ignition system can also be loaded to simulate the vehicle under load. This can be very helpful when diagnosing a vehicle with intermittent misfire.

Individual cylinders can also be killed.

### **OPTIMAX Jr by Tracer Products**

A good UV trace dye leak-detection light must have two important qualities: It must be brighter than anything else the technician has, and it must fit into tight underhood (and underbody) spaces. The OPTIMAX Jr “shines” in both categories. It highlights tiny dye traces from several feet away, not surprising because it uses an LED with the brightness of a 75-watt high-intensity bulb. The penlight housing is just 7 in. long and weighs only 5 oz. The LED is rated at 100,000 hours (you'll retire before it does, although its three AA batteries will need periodic replacement). The light is sold with fluorescence-enhancing safety glasses or in a kit with trace dyes and injectors for finding a/c and fluid leaks.

### **VW Diesel Air Intake & Exhaust Cleaning System by BG Products**

With sulfur-free diesel fuel becoming available nationwide next year, you can expect many diesel passenger cars to join the VW models with the TDI (turbo direct injection) engines. So if you've ignored passenger car diesel service until now, it's time for a closer look. The No. 9250 diesel intake and exhaust cleaning system kit provides an example of profitable maintenance and repair service you can perform. Exhaust soot builds up in the EGR cooler, EGR valve and intake manifold, and even cokes the intake valves. This could cause the turbo to stick, affecting engine performance. Expensive parts replacement had previously been the only choice. Remove the EGR valve and feeder tube for bench cleaning. Then the kit comes into the picture. If there's a really thick soot buildup in the manifold, thread a special auger from the kit through the EGR valve port to remove the bulk. Next, attach adapters to the cooler and EGR port of the intake manifold. Follow a specific engine-running procedure, using tanks of BG-supplied chemicals to clean the manifold, valves and cooler, often even a stuck turbo. Diesels have virtually no manifold vacuum, so the intake manifold adapter includes a shop air-powered venturi vacuum to help draw cleaner through to the valves. Although the kit's adapters fit only the VW diesel, new adapters will be introduced for the DaimlerChrysler (Mercedes), Ford and GM diesels now sold in Europe, when they reach the U.S. market.

### **SmartLift Three-Stage Lift Arms by Rotary Lift**

The Three-Stage Lift Arm option allows the service of a wider range of vehicles on a single SmartLift in-ground lift. These

three-stage arms are the only arms with the clevis (used to mount the arms to the lift) on the side, instead of the rear. The design opens up the back of the arm, making it possible for longer middle and inner arms to slide through the shorter outer arm and retract out the back. This provides a greater range of extension and retraction than other lift arm designs, providing a broader range of vehicle pickup points. The three-stage arm allows you to lift a wide range of vehicles, including those with wider vehicle track widths and lower profiles like the BMW Z4, a short wheelbase like the MINI Cooper or a long wheelbase like a full-size pickup or luxury car. The arms allow the user to move quickly from one type of vehicle to another, without the need for adjustments or having to stop and respot the vehicle. Independent shops that work on a variety of vehicles daily will find the Three-Stage Lift Arms a productivity enhancement that offers a clear return on investment.

### **Solarity Diagnostic System by OTC Diagnostics**

Solarity is a four-channel color lab and ignition scope that incorporates a full-function graphing multimeter. The tool also includes InfoTech database software, which provides the user with on-the-spot repair diagnostics based on vehicle-specific symptoms or component fault codes. InfoTech Software Subscriptions provide frequently updated wiring and connector diagrams, test procedures, specifications, reference waveforms, vehicle system tests and more via the Internet. Solarity features a 4MHz sample rate on each channel, adjustable glitch capture, Repair-Trac VIN-specific tech tips from master techs and primary/secondary ignition waveforms. A sunlight-readable 320x240 VGA color display is included and screen data output can be printed on most standard desktop printers. Future software updates will be made via USB key, the Internet or compact flash. As an ignition scope, Solarity allows the user to analyze and record patterns from primary/secondary and distributorless ignition systems and collect data from coil-on-plug systems, in raster, parade and superimposed and single-cylinder modes. As a full-function digital multimeter, Solarity can measure and display volts, ohms, rpm, frequency and duty cycle. Multiple waveforms can be simultaneously displayed for data comparisons and analysis.

### **Nitrogen Tire Filling System by Ingersoll-Rand**

The Nitrogen Tire Filling System utilizes membrane technology to deliver dry, inert nitrogen gas for tire filling. The system has no moving parts, is very quiet and requires simple annual maintenance. It can be connected to the existing compressed air supply and be ready to generate nitrogen in minutes. Nitrogen tire filling is a premium service that customers will embrace when its advantages are explained. Improper tire inflation compromises a tire's load capacity, decreases fuel economy and

results in sluggish performance and heat buildup. Heat buildup can lead to catastrophic tire failure. Additionally, as oxygen leaks out through a tire's rubber walls, it oxidizes the rubber compounds in the tire, causing the tire to deteriorate. Nitrogen is a clean, moisture-free gas that slows the tire aging process. Nitrogen leaks through a tire's rubber walls three times more slowly than oxygen. As a result, tires filled with nitrogen stay inflated longer, improving tire wear, grip, control and safety. For tire repair centers, using nitrogen tire-filling technology can save money and improve shop productivity, and demonstrates to customers that their safety and the proper maintenance of their vehicles is a top priority.

### **CenteringCheck for Wheel Balancers by Hunter Engineering**

To properly repair vibration-related complaints, wheels must be centered when mounted on balancers. Until recently, wheel-centering verification has not been offered as a wheel balancer feature. CenteringCheck provides a quick test that verifies that a wheel is properly center-mounted on the balancer shaft. This eliminates guesswork and charts when choosing mounting accessories and flags setup errors on problematic wheels. CenteringCheck compares two measurements in two mounted positions taken from the same wheel. If the setup measurements are the same, the wheel is ready to be balanced. Depending on the type of balancer, a weight or runout method is used to perform this procedure. If the two measurements match, the technician receives a PASS signal and the balancing procedure can proceed. If the measurements differ by a prescribed amount, the technician receives a FAIL signal, which likely means a different adapter or mounting should be chosen or the adapter and wheel mounting should be cleaned and inspected. CenteringCheck is included as a standard feature on Hunter GSP9700, DSP9600 and DSP9100 series balancers.

### **Compressor Turner Tool by AirSept**

A/C technicians find there's often the need to turn the compressor shaft to check for internal damage, free it up after "false seizure" and circulate oil prior to startup of a new compressor. If the clutch hub is one without a hex-end or nut for a wrench, as is true on many General Motors/ Delphi compressors, an ordinary wrench won't work. Some shops have tried to make hex-end adapters by combining fittings, but the shop-assembled combo fitting often ends up being too long to fit into the limited space in front of most compressors. That's the problem solved by this new compressor mini-tool. It threads into the end of the clutch hub and allows it to be turned in the direction of normal rotation, using any 5/8-in. wrench. And when the job is done, the tool unthreads easily.

## **Torque Buddy by Central Tools**

The Torque Buddy is a specially shaped wheel chock designed to restrain a wheel of a vehicle on a lift. The uneven tightening of lug nuts (particularly with impact tools) is a major cause of warpage to rotor and hub, and eventual braking problems. And there's merit to the idea that the best way to tighten the lug nuts evenly would be with the weight of the vehicle off the tires.

Okay, you can seat the lug nuts with an impact wrench, but if you want to carefully finish torquing to specs, the vehicle has to be lowered to the ground so one technician can do the job. With Torque Buddy it's still a one-technician job, but now the lug nuts can be tightened at all four wheels, in stages from finger-tight to final specs, while the vehicle still is on the lift.

## **ST 9015 Radio Removal Tool by Sir Tools**

The ST 9015 is like a Swiss Army knife for antitheft radio removal on a wide range of vehicles up to 2006 models, including many Mercedes, Porsche, BMW, Volkswagen and Audi models. Many Ford, Chevy, Saab and Land Rover models are also covered. This tool eliminates the need for an assortment of individual removal tools for specific models. Each half of the tool allows for an even pulling action, crucial for new

- Volkswagen and Audi models with four slits in the radio face. When not in use, the two halves slide together and are held in place via an interlocking channel. The tool then fits easily in the palm of your hand or a pocket. The tool halves can also be disassembled, allowing the addition of updated keys as new radio antitheft designs are introduced.

## **Imperial 470-FH Triple Head Tube Bender by Stride Tool**

The Imperial 470-FH Triple Head Tube Bender features a patented Roto-Lok action that allows the tool to bend tubing 90°, rotate and lock into a new position then bend the tubing up to another 90°. The Roto-Lok feature permits repositioning the lever arm handle when it approaches parallel, eliminating handle crossing for improved control. Its radius forming grooves allow it to make smooth, tight-radius bends of up to 180°. These grooves allow the user to bend the tubing in the smallest radius possible to enable tighter turns and minimize the amount of space taken by the bends. This feature, combined with the tool's compact design, is especially useful in automotive applications, where space is often at a premium. The tool includes a tube alignment window in the bend arm that makes bending easier and more precise because the user can sight exact points on the forming shoe and tubing. The tool can manipulate bends in soft copper, aluminum and thin-walled tubing in 3/16-, 1/4-, 5/16-

and 3/8-in. diameters, without the need for additional adapters.

### **Remote Entry Pro by Bright Solutions**

The remote has become so much a (nonattached) part of the modern car that most motorists are reluctant to use the key if the remote doesn't unlock the door. Of course, the remote is a part of the antitheft system, so diagnosing problems with it is important. For the independent shop without factory special testers, the low-cost, easy-to-use Remote Entry Pro keyless entry tester should help isolate the problem to the remote or the on-board antitheft system, without first trying the expensive step of installing a new battery. The tester works on both RF (radio frequency) or IR (infrared) transmitters, letting the technician know if the remote is transmitting a signal. Only if the remote fails to send a signal need the technician try a new battery, to see if it restores performance to a device he determined wasn't working. If the tester shows the remote is transmitting a signal, then the problem is apparently in the vehicle's antitheft system.

### **Terminal Release Tool Kit by Thexton Mfg.**

All carmakers have specific tests for electrical connector integrity, and wiring manufacturers develop a variety of designs to pass them. The result is that many different connectors are used in production, and each carmaker has a specific tool kit for its dealer shops. An independent technician can't have them all, but he also can't rely on a couple of small screwdrivers to open all connectors, or he's likely to affect a connector in an unknown way. A problem might result immediately or worse for the motorist, the terminals might make a marginal connection that could result in an electrical glitch down the road. The No. 493 Terminal Release Tool Kit contains seven tools to cover the most common applications: One tool is for Delphi male and female Weatherpack connectors, a second is for Amp Timer connectors (such as most fuel injector connectors) and a third is for Amp Timer connectors with a single tab as well as Delphi 56, 58 and 59 series connectors. There's also a universal tool for connectors with medium-to-large internal release tabs (such as Delphi Pack-Con), a tool for Delphi Metri-Pack Pull-Throughs, a semiuniversal tool for removing locking inserts from many connectors and even a tool for the latch sometimes found behind the locking insert (typically Amp and Deutch latch-types).

### **T.I.P.S. Pro Tire Pressure Positioning Switch Service Tool by G-5 Electronics**

Tire pressure monitoring won't be legally required across the board until September 2007. But the direct-reading systems with

sensors in the tires already have been installed on so many cars that aftermarket shops doing tire work have to deal with them. Each of the many system makers has its own initializer/tester, and a dealer technician may have two different tools. However, the Tire Inflation Positioning Switch (T.I.P.S.) Pro is a universal microprocessor-controlled tool designed by G-5 Electronics and marketed exclusively by Spectrum Composites, Inc. The most frequently needed service is reinitializing the system when tires are rotated or when a defective sensor is replaced, exactly what T.I.P.S. refers to. T.I.P.S. Pro also enables a technician to check the sensors before tire replacement, so a faulty sensor is not attributed to the work. During initialization, the tester produces an audible tone and flashes LEDs to confirm that a sensor has been triggered (and the vehicle receiver may provide its own signal, such as horn beeps). Although T.I.P.S. Pro works with all electronic frequency and magnetic sensors used presently as original equipment, the tester is reprogrammable for any new protocols that appear, so it should enjoy staying power as well.

### **PentaGrip Screwdriver by Snap-on Tools**

As nuts, bolts and screws are buried deeper into cars these days and the access angles become tougher, new wrenches and screwdrivers are needed to reach them. The new PentaGrip Screwdriver should cover many of the toughest-to-reach—both old and new, and probably some that are just on the drawing board. The tool's handle looks like an ordinary pistol-grip, but just push a button and it can be adjusted and locked in 30° and 60° positions. Using the molded-in PentaGrip for the technician's fingers transfers turning force from the wrist to the arm. We tried the tool and found we could apply more torque to a screw by using the PentaGrip. And for working in very tight quarters, the end cap can be removed to use as a stub-handle screwdriver.

### **Relay Box Test Extension Kit by Waekon**

This kit is sure to remind technicians of all the jury-rigged set-ups they've made over the years to live-test circuits with relays that are plugged into a junction box. The usual time-consuming approach: make "extension" jumpers by crimping spade terminals to short pieces of wire, remove the relay from the box and make reconnections with the extension jumpers. Of course, there still was the problem of reaching individual terminals on the small relay, which required careful use of a thin probe or piercing tool for the jumpers. This kit is the better answer. It comes with a stack of extension jumpers—two with large spades, six with medium spades and five with small spades. And just as important, each extension has a bare-wire center section, so the technician can probe without wire piercing. The center sections clip together, so you can keep the wires in order and easily jumper across or make other tests. And while shop-made jumpers tend to be misplaced, these extension jumpers come from a boxed kit, so there's a place to put them back until the

next time.

## **BCA 4 ISOCOLOR Headlamp Alignment System by Symtech**

Computerized headlamp alignment systems with colorized headlamp pattern capabilities have been available to vehicle manufacturers for some years, but at costs far exceeding the needs or wishes of even the most advanced repair facilities. The BCA 4 ISOCOLOR system emulates the advantages of the most sophisticated colorized headlamp alignment systems, but without the need for costly electronics, external power sources or excessive floor space. All lamps have a prescribed placement for the highest intensity light. The positioning of this high-intensity area during alignment is critical to safe driving.

Headlamps also are aligned to precise points at a distance of 25 ft. The BCA 4 ISOCOLOR system incorporates precision fresnel optics with a focal length that allows for lamp assessment within an area of not much more than 2 ft. The system identifies the lamp's high-intensity bands through coloration. Intensity is graphically illustrated and defined. The respective alignment points of placement are illustrated on the aim screen, assuring precision headlamp adjustment.

## **Vantage PRO by Snap-on Diagnostics**

The Vantage PRO is the first redesign of the original Vantage graphing multimeter. With the addition of a two-channel lab and ignition scope, fast ARM processor, large sunlight-readable 5.7-in. backlit color display, it now covers most vehicle makes from 1979 to 2003, including more than 45,000 unique vehicles. The high-speed lab scope gives technicians the power to view, analyze and capture intermittent signals. Its eight-megasamples-per-second speed and patented glitch display technologies ensure accurate diagnosis of even fast CAN-bus signals. The Vantage PRO offers five independent channels that accept a variety of standard and optional test leads for accurate testing on a wide range of vehicles, permitting specific readings from each channel. The Vantage PRO guides the technician and provides instruction on proper testing procedures and tips from its internal troubleshooter database. The unit automatically configures itself to ensure optimal viewing of the waveforms, reducing overall setup and testing time. The unit provides over 2 million vehicle-specific component tests. The meter and lab scope store more than 1000 continuous screens of diagnostic data. The patented Peak Detect software ensures that the 262,000 data points stored for each channel are the most valuable readings, making glitches more visible. Additional insights from ASE-certified and factory technicians embedded in the Vantage PRO include: no-start, ignition, current ramping, transmission and oxygen sensor diagnostic strategies and training modules.

## **Honda/Acura Trailing Arm Bushing Removal and Installation Tool by SP Tools/Schley Products**

The problem is familiar to Honda specialists: clunks and squeaks from the rear suspension of Civics and Civic "derivative" models from 1988 to as late as 2001. The fix has been equally familiar: Remove each rear trailing arm (a job involving a number of rear brake system disconnections), put the arm in a press and R&R the bushing. Then reinstall the arm, reconnect it and everything else that had to be loosened or removed. Almost two hours per side later, the job is done. This new tool "destroys" the flat rate by allowing the job to be done on the car in about 15 minutes per side. Just disconnect the bushing flanges, position the driver/installer against the old bushing and install a forcing screw tool over it. Turn the forcing screw to push out the old bushing, then use a similar approach to install the replacement. The tool kit, No. 65100, works on 1988-2000 Civics, 1988-91 CRXs, 1993-97 Del Sols, 1997-2001 CRVs and 1994-2001 Acura Integras. It even may save the need for a rear-wheel alignment.

## **inTELLECT EXP by Midtronics**

The inTELLECT EXP allows the user to diagnose every part of a vehicle's electrical system, from the battery to the starter and alternator. The unit combines the functions of an analyzer, digital multimeter and data management tool. It incorporates dynamic conductance technology, which combines additional test input measurements and processing power to deliver improved battery testing accuracy. State-of-charge and battery temperature compensation allow for better decisions on borderline batteries. Multiple signal processing identifies battery defects, even at extremely low voltage. During-charge test algorithms eliminate the need to charge and retest. Enhanced starter testing fully diagnoses all parts of the starting system, including current draw, starting time and circuit resistance. Alternator diagnostics evaluate the spectral content of the alternator output voltage at the battery, showing potential problems before the alternator fails. New conductance cable verification allows simultaneous calculation of voltage drop across the positive and negative sides of the circuit, plus total voltage drop. The analyzer incorporates complete multimeter functionality with scope mode. A secure digital (SD) memory card allows for future test and feature upgrades, plus expanded tool functionality. A large backlit screen and icon-based user interface simplify diagnostics for both experienced and novice techs. Test results can be printed to an IR printer for presentation to customers and to verify results.

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